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Customer Management and Communication in Media Projects

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<p>The purpose of this thesis was to examine customer projects from a student view point of a University of Applied Sciences. The aim of this study was to go through two previously done projects and point out important aspects in them. This study also includes making a separate Student Project Guideline, which contains information and good practices that could be used in future student projects.</p> <p>This thesis is based on two projects with different outcomes, both conducted in the Media Engineering program. The first project's purpose was to create an interactive touchscreen implementation (digital signage), for a museum. This project was part of a study course and was completed successfully in the spring of 2011. The purpose of the second project was to create marketing material, videos and 3D images, for a electronic workstation manufacturer. The marketing material project was part of industrial placement studies and suffered a number of complications during its production in summer 2011. Even though the projects have different kinds of products, the project management has many similarities.</p> <p>The thesis focuses on the stages of project management and two important aspects: communication and customer management. Media project management can be divided in to four stages: defining, designing, doing and developing. Audiovisual projects follow a similar structure which is preproduction, production and postproduction stages. For all these stages to come together, successful communication is needed inside the project group and with the customer. Students get a good opportunity to start improving their customer management skills in school customer projects.</p> <p>For students, project management skills in addition to technical knowledge are some of the most important skills to obtain during their study years in the media engineering program. This thesis and Student Project Guideline point out the main problems and outline usable practices in project management.</p>	
Keywords	project management, media project, communication, customer management.

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<p> Insinööriyön tarkoituksena oli tutkia ammattikorkeakoulun opintoihin liittyvien asiakasprojektien hallintaa opiskelijoiden näkökulmasta. Tavoitteena oli käydä läpi kaksi aiemmin valmistunutta projektia ja esitellä niistä tärkeimmät asiat. Tavoitteena oli myös tehdä erillinen englanninkielinen opas, Student Project Guide, joka sisältää tietoa projektin hallinnasta ja jota opiskelijat voisivat hyödyntää tulevilla asiakasprojekteilla. </p> <p> Työ perustuu kahteen erilaiseen projektiin, joissa oli kaksi erilaista tulosta. Molemmat projektit oli tehty mediatekniikan koulutusohjelmassa. Ensimmäisen projektin tarkoitus oli luoda interaktiivinen kosketusnäyttö käyttöliittymä (digital signage). Asiakas oli kaupungin museo. Onnistunut projekti oli osa opintojaksonsuoritusta ja toteutettiin keväällä 2011. Toisen projektin tarkoitus oli tuottaa markkinointimateriaalia, kuten videoita ja 3D-kuvia. Asiakas oli elektronisten työpisteiden valmistaja. Markkinointimateriaaliprojekti oli osa insinööriyön tekijän työharjoittelua. Projekti kohtasi monia ongelmia sen tuotantoaikana keuhalla 2011. Vaikka vertailtavissa projekteissa oli erilaiset tulokset, oli niiden hallinta melko samanlaista. </p> <p> Insinööriyö keskittyy projektin hallinnan vaiheisiin ja kahteen tärkeään asiaan: viestintään ja asiakkuuden hallintaan. Mediaprojektien hallinta voidaan jakaa neljään vaiheeseen: määrittely, suunnittelu, teko ja kehitys. Audiovisuaalisten projektien hallinta seuraa samanlaista rakennetta, se on jaettu kolmeen vaiheeseen: esituotanto, tuotanto ja jälkituotanto. Jotta kaikki projektituotannon vaiheet toimisivat, hyvä kommunikaatio projektiryhmän sisällä ja asiakkaan kanssa on tärkeää. Mediatekniikan opiskelijat saavatkin hyvän mahdollisuuden harjoitella asiakkuuden hallintaa ammattikorkeakoulun asiakasprojekteilla. </p> <p> Insinööriopiskelijoille projektinhallinta, teknisen tiedon lisäksi, on yksi tärkeimpiä taitoja oppia. Insinööriyöraportti sekä projektityöopas esittelevät ongelmakohtia ja antavat yleiskatsauksen projektinhallinnan käytäntöihin. </p>	
Avainsanat	projektihallinta, mediaprojekti, viestintä, asiakkuuden hallinta.

Contents

Abbreviations and terms	5
1 Introduction	1
2 Introduction of two different media projects	2
2.1 Digital signage project	2
2.2 Marketing material project	4
3 Communication	5
4 Customer management	6
4.1 The roles	6
4.2 Communicating with the customer	7
5 Project management	9
5.1 Project management for media	9
5.1.1 Define it	10
5.1.2 Design it	11
5.1.3 Do it	12
5.1.4 Develop it	13
5.2 Project Management for Audiovisual Production	13
6 Production of two different media projects	14
6.1 Planning for Digital signage	14
6.2 Planning for marketing material project	15
6.3 Preproduction for Digital signage	16
6.4 Preproduction for marketing material project	18
6.5 Production stage of digital signage project	20
6.6 Production for marketing material project	25
6.7 Digital signage post production work	29
6.8 Postproduction work for marketing material project	30
6.9 What was learned from the projects	31
7 Conclusions	33
Appendices	
Appendix 1. Student project guide	

Abbreviations and terms

Bug	Error, flaw or failure in a computer program or system.
Digital signage	Platform for distributing information and advertisement on digital screens.
KAMU	Espoo city museum (fin. Espoon kaupungin museo)
Mock-up	A visualized model or a prototype of a design or a device.
Moiré pattern	Unwanted pattern, "noise" or "strobing" caused by sampling or interlacing.
Multimedia	Combination of different content forms, such as text, audio, images, animation or interactivity
RAW image	A file format from digital cameras. Commonly unprocessed and large in size.
Scene	A film scene is considered to be in a single location and continuous time.
Shot	One continuous strip of film.
To shoot	To be in the process of filming.
Treatment	"A short story" version of a film.

1 Introduction

Customer and project management skills are important to all engineers. At Metropolia University's Media engineering degree program customer projects are done throughout the study years. Customers are usually other schools, individual people or small to large companies. Projects substances vary from web page development to DVD production. They can last for a few weeks or even the whole semester. Customer projects are most likely to be connected to a corresponding course subject or done during the industrial placement period. Students can earn study points or get other compensation from the projects. In some cases the customer will provide material for the product or it is completely created by the project group.

The purpose of this study is to compare two different projects that have different products, customers and two different outcomes. The first project was successfully completed during my third study year in 2011. It was a digital signage created for Espoo city museum. The second project I did as part of my industrial placement studies during my final year in 2012. The outcome was marketing material for an electronic workstation manufacturer called Teklab. I have also taken part in about dozen other projects related to my study field.

I grew interested in this topic after having experienced many different kinds of projects. I wondered why some projects worked better than others even though the starting settings were the same. As a student I got an opportunity to experience a different role in each project I participated in. I also noticed how each project group members had an individual view on how the project should progress. In addition I started to think how much more smoothly projects would progress if all participants had an insight for project management skills from the beginning. As a result of those observations, I included a Student Project Guideline to this thesis, in order to provide an initial introduction to project management.

2 Introduction of two different media projects

2.1 Digital signage project

This multimedia project was started in January 2011 and it ended three months later in April. It corresponded to the University's Media Product Project course content. The product developed, in easy terms, was a digital brochure that provided museum guests more information about the Passion For Collecting Exhibition. The exhibition was displayed in the Espoo city museum from the 20th of April to the 20th of November 2011.

During the project the engine, interface, and visual look that included large images and information in three languages; Finnish, Swedish and English, were developed. The concept and all needed material we received from the client. The material included translated text, raw images and the actual touch screen displays for the project. Our job was to combine all this information and create an accessible, logical and visually appealing touch screen interface.

In addition to myself, this project included two of my classmates Matti Lahtinen, who was the main coder and Matias Tukiainen, with whom I worked manipulating the images and inputting the xml-code. Supervising and helping with the customer contact was Development Engineer Matti Paasonen. Principal Lecturer Erkki Aalto, acted as the instructor.

The customer was the Espoo City Museum (KAMU) which is located in the Weegee Exhibition Center in Espoo. They collaborate with many organizations to hold versatile exhibitions and workshops throughout the year. This was the first time they collaborated with Metropolia engineering students in the creation of their exhibition. Exhibition Secretary Eeva Kyllönen and Museum Lecturer Minna Vento worked close with us throughout the entire process of the project.

Digital signage is a fairly new platform for distributing information and advertisement on digital screens. It is also called Digital Out Of Home (DOOH). Digital signage can be found in public or private surroundings, for example shopping centers or corporate buildings. Its main purpose is to convey targeted messages to in a particular location

at a certain time. One display can be controlled by a personal computer and networks of displays; the displays can be controlled by a server.

Digital signage networks are most commonly found in three different types of places: close to a product or service for sale (POS Point of Sale networks), by Digital billboards and store windows (POT Point Of Transit networks) or targeted to customers who have a lot of time to spend, such as public transportation or doctor waiting room (POW Point Of Wait networks). [1,1-4.]

Our product differed from the marketing perspective because it was intended to deliver detailed information to its users, not to sell the products. Also, the interactive features increased the relevance and engaged the users to stay with the screen for a long time. [1,6.] Therefore, the direct intention of purchasing the merchandise is eliminated. If I would categorize our product, it would be closer to Point of Wait networks, because the museum goers have a lot of time to spend. They could also be categorized as Point of Sale networks, since the screens were located in the immediate proximity of the artifacts. As you can see from figure 1, displays are similar to computer screens, which are mounted into the exhibition structures.



Figure 1. Touching of the digital signage interface in the museum space.

The figure 1 illustrates how carefully visual aspects of the screens had to be considered. If the screen had deviant colors or shapes, it could be distractive for the rest of the exhibition. But if they were too dark and neutral, people would not notice them.

2.2 Marketing material project

The goal of this project was to create video material and 3D images that could be used as part of company's marketing material. The project was started in June 2011 and finished on September the same year. I was working for Metropolia University during the summer months and completed my work placement practices with this project.

The initial plan was that the video would be divided into three different topics. The first topic was displaying the workstations multiple use purposes; the second one was demonstrating a mobile control classroom and the third topic was going through workstations training kit integration. In addition to the video, the customer requested us to make 3D image of the classrooms from their already existing 3D models. The material was intended to be displayed on their website or used in customer meetings and presentations. Development Engineer Matti Paasonen, who was in charge of 3D images and possible animation, was working with me on this project. I was in charge of producing the video material. Assisting us, was another media engineering student Frans Tihveräinen.

The client, Teklab, is a medium sized, Finnish company that manufactures modular multipurpose electric workstations and laboratories, for industrial and education use. The motorized multipurpose workstations, as seen in figure 2, can be used for example in soldering and completing other electronic exercises.



Figure 2. HELP 5 Motorized multipurpose workstation.

The workstation presented in figure 2 is similar to what Metropolia University's laboratory room is equipped with. The workstation can have many instruments integrated into the panel. The back panel is motorized to open and close, and it can be even controlled from a remote location. It has a storage unit for components, cables and training material. Some workstations can have integrated training kits which enable training of many subjects, such as calibrating or soldering. [2]. Working with us on this project was Teklab's CEO Esko Horelli and Partner Manager Timo Kenttälä. Instructing teacher for this project was Principal Lecturer Erkki Aalto.

3 Communication

Communicate comes from a Latin word "communicare" it means to participate, impart, to share in common [3]. Communication has a specific purpose, not to keep information to yourself, but to share it with others by speaking, writing, moving your body or using other signals. The main components of communication are transmitter, message, media and receiver. The responsibility of receiver and transmitter is that the communication is successful. [4,1-2.] Although the components for communicating are clear, communication can be difficult to grasp because it is individual for all of us. It influences how we behave and how we analyze a situation.

In today's society we communicate mostly by using technology. From Gutenberg's press we have evolved to much more advanced information and communication technologies and can have multiple and simultaneous senders and receivers. [5,90-91.] In

today's computer driven world we have more tools in our hand that we have the use for.

In business world and in student projects, communication between group members is an important matter, but it is rarely carefully considered [6]. Most problems in any level arise from lack of effective communication. Misunderstandings and misrepresentations can be minimized by a well-planned communication system. [4,3.] When choosing the strategy and way of communicating, the key thing to consider is the purpose. An advanced communication system, no matter how fancy, is only used if it serves the users' purpose. There is no right way and one method that will work for everyone. A project group will have to evaluate what method will give them the greatest chance to succeed. [5 ,349.] In practice, the group will have to define the location, method and medium of communication, clearly from the beginning of each project.

When thinking about communication, we should place it in our social and cultural context. Manners, customs and gestures are different in different cultures. For example being assertive in business meetings is appropriate and almost the norm in the western world. But there is a lot of research that shows that assertive behavior is considered aggressive and inappropriate in certain cultural settings. [5,350.] Taking cultural matters into consideration is extremely important when going abroad and acting in other countries, but also important to remember in Finland. In Metropolia University's media engineering program we have students from all over the world, working in groups together. Communication in a group project can be challenging if students and teachers are not conscious of each member's background.

4 Customer management

4.1 The roles

The role of the school should be stated to the whole project group in the first meeting. This would help the students to cope with the whole project, especially if they are doing a customer project for the first time. In Metropolia University's media engineering projects, the teacher's role in the beginning is to define and negotiate with the customer the scope of the project. The instructing teacher should also make the contract and help to form the project group. After the project has started, the teacher could

take the role of facilitator and supervisor. However, every project is different, so these guidelines cannot be followed in every case. [6.]

In the beginning of the project the members should make sure that the customer introduces the topic precisely. Also the requirements for the final product are essential. Even though the project group is in charge of the development, the customer should be involved in the process as well. The more the customer gives effort and input to the project, the better results are. A ready-made media project is reasonably difficult or even impossible to be produced by students only, unless they have been involved with a comparable previous project. [6.]

The customer involvement is needed, because often the customer is the expert on the given issue, and can point out the possible problems ahead. Knowing that they have the best knowledge about the subject, the customer should approve the direction the development is going to. If the customer will only give his/hers opinion when the product is been developed, or in the worst case when the product is done, there will most likely be additional work needed. This can cause problems in keeping in schedule. [6.]

It is the school's and project group's responsibility to get the customer involved from the start. The amount of customer involvement is specific to each project. It can be that the customer is not extremely interested about the particular project, or due to the lack of time, has no possibility to be involved. This will make the job more difficult for the project group. The lack of customer involvement can also lead to lack of motivation in the project group. If the customer is not responding in a timely manor or sending the required materials, it is hard for the project group to be motivated. Luckily this is not the case in most of the projects.

Student's roles inside the project group should be arranged in the beginning of the project. The needed roles will always vary with the projects, although there are some that are practically found in every project. For instance a project leader, who pulls all the strings and keeps the group in order. And a note taker or recorder is vital in every stage of the project. That person keeps track of tasks and what was agreed in the meetings. It is good to define one spokes person who handles most of the information

change with the customer. This will be convenient for the client and the information will be distributed inside the student group.

4.2 Communicating with the customer

The key to a successful customer project is to maintain a good customer relationship. The customer should be included in the project as early as possible in the process. Throughout the project the customer should be involved offering another viewpoint and accepting key changes. Communication with the customer in projects is most commonly done in project meetings. For inexperienced students, having productive meetings can be a challenge. In this chapter I will go through how it can be accomplished.

Before the meeting the project manager makes sure everyone has required information about the meeting. Project manager, or person leading the meeting, should develop a topic list, invite participants and distribute the agenda. All attendees should know the purpose of the meeting and understand their individual role. It is good to point out that especially in Finland being early is being in time. Meetings are commonly started and ended by the schedule. In the beginning of the meeting a note taker should be assigned. It is important to have decisions and actions documented accurately. Meeting notes help to review and remember the discussions and decisions made. They also help those not present in the meeting, to get information about the stage of the project. [6.]

During the meeting the agenda should be used to stay on track. The person who is leading the meeting should allow everybody to have a voice in the topic being discussed. Participants should keep their statements short and on point. It is crucial that everybody understands when decisions are being made. Before the meeting has ended, all major points should be reviewed and next steps should be clearly stated. After the meeting the note taker writes the meeting record. Then it must be stored and distributed to all participants. After that project development should be carried out as recorded. [6.]

Knowing the business etiquette helps the students to communicate with the customer. When students are meeting the customer for the first time, attire can be casual but clean. First greeting with the customer can be formal. It is customary to greet with a smile, direct eye contact and a firm handshake. Repeating your first and last name while you are shaking hands is preferred. After establishing a relationship with the customer, communication can be informal if suited to the project. Getting used to proper way of meeting with clients will benefit the students in their working life.

5 Project management

5.1 Project management for media

There are similar ways of managing all projects successfully; even though the products of student projects vary from web pages to DVDs. Project management can be divided into four categories as seen on table 1.

Table 1. Project management process chart. Data gathered from [6][7]

Project management process 4D's			
D1	Define it	1.	Select a project leader
		2.	Define expectations
D2	Design it	3.	Assign people to individual tasks
		4.	Develop a schedule/work plan
D3	Do it	5.	Assess progress
		6.	Adjust the plan
		7.	Repeat steps 5 and 6 until complete
D4	Develop it	8.	Report store and improve

Table 1 shows you how different stages are divided. Project start with a defining stage and is then continued with designing stage. The third stage, doing, is where the wanted product is actually developed. Final stage is development where the process is reviewed and future aspects considered. In the following chapters every stage will be explained in more detail.

5.1.1 Define it

It is recommended to have a written contract in the beginning of every project. Most commonly the contract is done between the school and the customer. It is the teacher's role to do tendering, negotiating and pricing for a particular project. The contract should at least state the parties, scope and definition of the project. Changes can be later on made in the project meetings, if both parties agree to them. The contract should also state how conflict situations would be resolved.

Defining Expectations is to agree with the customer, which is the main purpose or product of the project. As the project is just starting, it is good to designate one project leader. Having multiple leaders can cause unnecessary conflict or missed assignments. Project leader takes "ownership" of the project and leads the team all the way to a successful end. The role of project leader should rotate so that everyone gets an opportunity to experience and nobody gets an overwhelming amount of work. This is crucial when some students have a number of projects to work on at the same time. Everyone leads in a different way; he or she can only practice their leading style by leading. Students should remember that a project leader's role is a good credit to mention in their resume. [7.]

After forming the project group you should get a scope of the project. If you don't know where you are going, you will not know when you get there. There should be definitions of how big, long, detailed, etc. the project is. Everyone in the project group should understand the ideas and concepts from the beginning. It is important to understand what the customer is expecting as the final product. It is not rare that the scope has been discussed between the school and customer before the students have been told about the project. Students should understand what is expected of them.

When you have got a clear understanding about the whole project you can start to define the quality and critical characteristics of the project. Each task in the project can have a specific outcome, for example drawing, computer program, calculation, report or analysis. The quality of each can be measured differently; it all depends on the wanted outcome or product. It is good to have a look at previous projects as an example, or have the school to give insight into the expected quality. It is also good to discuss how and by whom the quality will be assessed. [7.]

When the project has been defined, all parties are bound by the contract. It is the student's responsibility to deliver the wanted product. This is why it is important for the students to evaluate their own skill level and whether they will take the project or not. The school is taking a risk by offering out these products, because it is never guaranteed that the students can deliver. [8.]

5.1.2 Design it

After the project has been defined, the project group can move on to design stage. In the design stage, assigning people to individual tasks is most likely the first thing to do. The group dynamic needs to be right for the project to run smoothly. If the instructing teacher was well aware of different student's capabilities and personalities then this would make it a lot easier to assign the roles to the proper student. In some cases it might be good that the project group is given a list of suggested roles and they are let to sort out the groups internal dynamic themselves. It is good to remember in school project to let the roles rotate randomly so that everybody gets experience and finds what they are good at. Randomizing the tasks also tackles prejudice that some roles may have, for example always having males as project leaders and females as secretaries. [9.]

Matching the requirements of the task to the abilities, skills and preferences of each team member is a job for the project manager. It is important to avoid confusion. Even though multiple people can work on a same task, assigning only one person responsible for each task is a must. Assigning the task that is critical to projects success should be given to the most motivated and skillful team member. Keeping all this in mind, students are learning in the process, can have other demands on their time and can get quickly overloaded. [7.]

Schedules are essential to all projects. They should be developed during the design stage or as early as possible. They should be easily accessible and viewed daily. Constructing the schedule should be started from fixed dates, when the project begins and is due. Next, the project should be broken down into individual tasks. The time to complete each task should be estimated and the dependencies of tasks must be identi-

fied. If possible, some air should be left to the schedule, since people are often optimistic on their time estimates. Also unexpected delays such as the flu are common. Team leader should review progress and keep team members completing their tasks on time. There are many types of schedules. Three most common schedules that are simple to use are: a schedule of end dates, Bar chart, or Gantt chart. All of these can be easily found online.

It is important to agree how to keep contact during the project. By setting up a method from the beginning is convenient for all parties. Today there is big variety of technology to help us with communication, but most commonly, email, phone, and meetings are used. In a media project one key aspect is how the file storing is organized. The naming method should be logical to all participants. A good way is to use separate folders for each category of elements, and have them in a ascending or descending order by date not by name. The files can be stored in a cloud or separate hard drive. Also you may find many file hosting providers from the Internet. The backup of project files is good to do frequently. It can save a project from the worst-case scenario, which is losing all previous work to an equipment malfunction.

5.1.3 Do it

During the project team members put their people skills to practice. It happens sometimes that people do not follow through with their commitments. Many are optimistic about catching up on their work later, if they are behind the schedule. A good way for team leader to stay on top of things is to request on seeing intermediate work and check status of individual tasks. Doing so helps to clear any existing misunderstandings. Usually to check progress, a progress meeting is held. In the meeting project status and key decisions are recapped and any barriers for progress can be identified. Task schedule should be updated and project manager should keep track on the progress of all tasks.

The Leader should review the progress of individual tasks in project meetings and adjust the plan until the project is complete. It is good to be realistic and not hope for faster progress. Bad news do not improve with time. The earlier the problem is admitted the faster a solution will be found. To get the project completed in wanted time,

project team has to keep track of all small tasks. A useful tool for project leader to assess progress is frequent communication.

5.1.4 Develop it

Even if a project was successfully completed, it is important to take time to reflect upon the process. The Purpose of reporting is to review the project as a whole and point out good practices and improvements. Good meeting notes are a report half way done. All in all, the main thing is to learn from all projects and improve student skills. The final thing to remember is that, all files should be stored together with all project documentation. They should be easily accessible on a later date. It might be that the same group is asked to do a similar project again for another customer. No point inventing the wheel again. [6;7.]

5.2 Project Management for Audiovisual Production

Audiovisual production has its own established production line which slightly differs from the previous. Audiovisual project most commonly follow three stages: preproduction, production and post-production. Below I will discuss what these stages contain.

If you are making a film or a short movie, first and foremost the idea needs to be created and sold to a producer. The author makes a short introductory and an appealing talk, this is called pitching. After the idea is sold, a treatment and a script will be written. When a final script or screenplay is approved it will be broken down into shooting days. The days are organized based on location, cast and other details. This stage is called script breakdown. [10.]

If you are not making your own production, you will start from thinking how an idea can be best presented through moving picture and sounds. In this case the idea is provided by the customer. The whole visual look and message needs to be determined and decided. This is most commonly done between the client and the producer. Production group needs to do background work and research. This can include familiarizing with the subject and location scouting, depending on the existing project. Budgeting, casting, crew and equipment hiring is all part of preproduction stage. [10.]

Production is the most expensive stage which needs to be well planned. This puts a lot of significance to preproduction stage. In production the actual material is recorded, which puts the whole production crew under a lot of work. All production crewmembers, cast and equipment needs to be on location and working cohesively towards the same objective. A good quality is gained when all crew members are efficient in the task they are assigned to. [11.]

Postproduction is intertwined with pre- and production stages. In the postproduction stage you will see the importance of well planned and executed material. Cutting and fitting together video and sound material is called editing. If material has not been planned to fit together, it is very difficult to achieve the wanted result in the editing stage. Sometimes reshoots are needed which is always a time consuming process. Solving problems in postproduction is extremely difficult and time consuming, sometimes even impossible. In postproduction stage effects, credits and all needed materials are put together to make the finalized product. After that the product is exported to the right format, copied and distributed as wanted. [12.]

6 Production of two different media projects

6.1 Planning for Digital signage

Digital signage project started in January 2011. Metropolia and KAMU had already been in contact about the project, the scope and contract was clear. Our principle lecturer Erkki Aalto offered the project to us on the beginning of the Media Project Course. Matti Lahtinen was confident to do the code because a previous product of digital signage that he created already existed in the school. Matias Tukiainen and I both knew Extensible Markup Language (XML) and were efficient in picture manipulation due to our studies. The beginning of the project was smooth because everybody was assigned to a task and we had confidence that everybody chosen was going to do a good job.

Then we were introduced to the topic and requirements of the product. It was to be a visually appealing and easy to use touch screen interface that was suitable for the museum customers. The customers of the museum ranged from student groups to elderly persons. The museum space always changes with the exhibition and we had no idea

yet what the space would look like or where the screens would be placed. The visual look of the touch screen interface needed to match the visual look of the whole exhibition. Those visual aspects of the space were designed by a third party, an interior designer company called Amerikka. All and all there were quite many people involved and interdependencies of tasks needed to be understood.

One aspect was clear and concrete from the beginning; the expected delivery date. Since the exhibition was opening in 18th of April 2011, there was no option to extend the dates. The deadline for delivery was set to 8th of April so there would be a chance to make changes when the touch screens were in the actual environment. This was the first time KAMU collaborated with Metropolia University and a student group. They were optimistic about working with us.

6.2 Planning for marketing material project

Marketing material project, for electronic workstation manufacturer Teklab, started in April 2011. Teklab had already been in contact with Metropolia many times over the past year. But before April there were no possibilities for development. Principal lecturer Erkki Aalto offered me the project to be part of my industrial placement.

I had no previous information about the client or the workstations they manufacture. I started to find out information about the topic by visiting the workstation lab and searching the company's website for information. The first meeting with the client was organized to discuss what the customer wanted us to produce. The whole project group was present with the exception of Frans Tihveräinen who joined the project later. The project would be comprised of producing 3D images and marketing video material. 3D image wireframes were to be provided by the customer and Matti Paasonen and Frans Tihveräinen would manipulate and render the images to wanted output formats. At this point the amount of images was not clear.

Video material themes were presented and discussed by the whole team. The customer presented three script outlines for the video material. The first video was titled Motorized multipurpose workstations. This video would present the versatile use of electronic workstation classroom located at Metropolia. It would show how theory and la-

laboratory work can be done in the same place. The second video title was Mobile Control. It would present how the workstations could be controlled from a remote location and how the software they had developed worked. The third and final video title was Integrated Training Kits, which was to give more detail information about the possibilities integrating instruments and training gear into the workstations.

All videos had initial script that the customer has created and they were timed to be from 45 seconds to 3 minutes long. Also, in the first meeting we discussed about the possible titles of having text or narrative with the visual images. The customer and we agreed that there was no possibility for us to produce a quality narrative here in school and that would have to be ordered from a third party. The narrative was left out and in this project there would only be text used.

The project was taking place during the summer months. This was known to create many complications, since the school is not open regularly and all staff is not available. The project was scheduled to be complete before the school started again in August 2011. After the first meeting, we waited for about a week to get a final confirmation from the customer that the project got a green light.

6.3 Preproduction for Digital signage

We had a project meeting with the customer, where everybody was introduced. The museum counsel presented us with all information about the exhibition and introduced us to the topic. The Passion for Collecting -exhibition had many types of artifacts on display and the artifact types were divided in to categories. Three of these categories were chosen to be presented in the touch screen displays. The categories were silver, porcelain and weapons. The museum provided us the pictures and text information of these artifacts, in all three languages. The text was already compartmentalized into levels that gave us an idea how all information should be shown. All information was given to us as soon as it was processed, but text needed to be composed and translated to Swedish and English. And some particular images we could only receive close to the due date because some artifacts could be photographed after they arrived to the museum.

We visited the exhibition space for the first time, to get a feeling of the whole space. Even though there was a different exhibition on display at that moment, it was good that we sensed how the future users feel to be guests there. The place, height and size of the screen would matter a lot for the usability.

We made a list of tasks to do, and tried to find out what the order and reliance of tasks would be. For example we could not decide the size of the images before we got the fonts from the client, so we could make sure all text fits the wanted place. Also we talked about the code and its possibilities, since digital signage platform was not familiar to all group members.

We formulated the timetable as far as we could. The schedule was quite tight, so we planned to work on the project on a few set times every week. We also made time to work on the project whenever our school schedule had room in it. A project work room and a computer was provided in our use, which made working together easier. We did not have to arrange a separate place to meet every time.

I was chosen to take meeting notes and document our progress. I kept a simple log of all tasks we did each day and made sure all questions reached the customer. Files were stored in a project folder in the main computer. File backups were stored and kept on a separate hard drive. Communication with the customer, for us students, went through Matti Paasonen. Meetings with the customer were called every time they were needed. It became common to schedule the next meeting every time we met. Material and urgent questions were exchanged through email. All contact information was exchanged in the first meeting.

Hardware and software used in this project was considerably light, although many media were combined. As hardware we used PCs, windows platform computers to implement the code and xml. Notepad program was used to adjust the code and Visio program to make page layout charts. To run digital signage interface, computers needed to have Flash player and the most recent flash update. Picture manipulation was done on Mac OS computers with Photoshop CS5. The Elo touch screen monitors were provided by the museum, they were in size 22inch, which is 1680 by 1050 in pixels.

6.4 Preproduction for marketing material project

Preproduction work was started with scheduling. I made a Gantt chart with a list of tasks to do and set dates to have them done by. Making the schedule was difficult because the summer had already started. Classroom reservation was important to confirm from several individuals, because Metropolia University's departments work together, but information does not always reach everybody involved. Confirming aspects from different departments was time consuming and even small things became obstacles. For example, the shoot days could not be confirmed until I had information about the floor waxing.

I started planning the video content by making storyboards from the given material. Storyboarding is a way of pre-visualizing the wanted video material in picture format. It is a good way of showing the customer how the video will move on from one shot to another and possible problems can be solved already in this stage. As you can see from figure 3, all images can be planned in the wanted picture size and shot angle. Also camera movement can be written down to match each shot. For storyboarding I used a program called Celtx, which is a great tool for film preproduction.

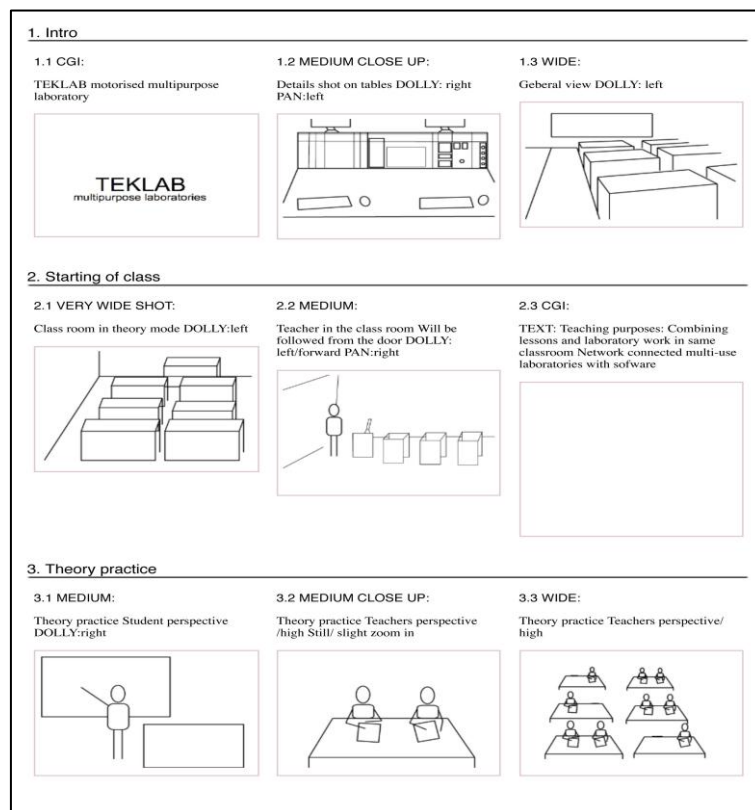


Figure 3. Multipurpose video storyboard from scenes 1-3.

From figure 3, you can see three scenes which each have three different shots. Above each shot, size and movement can be seen in capital letters. Also, the description of what is happening in each shot is written above it. On the actual shoot day storyboards are good to have on the wall, as reference.

After the customer approved the storyboards, I could start choosing what kind of equipment to use. I chose equipment that was already familiar to me from previous projects. Equipment needed to be reserved and checked ahead of time. In practice a test shoot is made to find out that everything was working properly and suitable for the space.

In preproduction stage gathering the cast is also included. As the videos simulated real-life, we needed approximately eight students and a teacher to appear in the classroom. As a teacher, we used a student-teacher of the electronic workstation class, Joe Hotchkiss. Students were borrowed from different parts of the school. Some students were my classmates and others were working on their own projects during the summer. People came for the day, some even for two days, to help in this project and they were compensated with some food and a big thank you.

For this audiovisual project quite a lot of equipment and tools was required. In this project I worked on both MAC and PC platforms. For text manipulating I used Microsoft Word and Excel programs. Storyboarding was done using Celtx program. Adobe Premier Pro CS5 was used to cut and edit the video material together. Sound work was done in our sound studio Sonar and separate Smart Sound CDs were used. To edit the sound I used a program named Sound Booth. For animating text and graphics the Adobe After Effects program was used.

For filming were chosen Panasonic HPX camera with a 64 gigabyte memory card and a Cartone stand. I placed a camera on top of a dolly, to get more variation to the shots. For additional lighting I used Arri 4x600watts lighting kit, with softeners. For audio recording Marantz recorder was used with a capacitor microphone and Panasonic headphones.

6.5 Production stage of digital signage project

We decided to start with planning the structure and visual look of one category, silver. After we got all main components done in one category, it would be straight forward to plan the other two. As you can see from figure 4, the first draft is commonly made by hand.

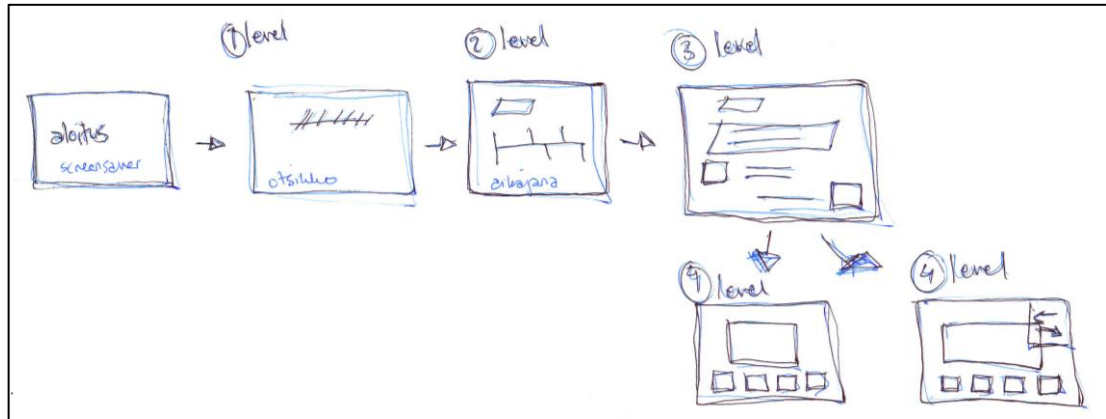


Figure 4. Mock-up of page layouts.

In this stage it is important to consider how much information there is needed in each page. You can see from figure 4, how we started the plan from screensaver layout then moved to main starting page (1level). After that a timeline (2level), where all artifact categories could be shown and a detailed information page (3level). Finally a slideshow (4level), where detail pictures could be seen, was planned. From the text files that we received from the client, we made a level and a page diagram for one artifact category, silver illustrated in figure 5.

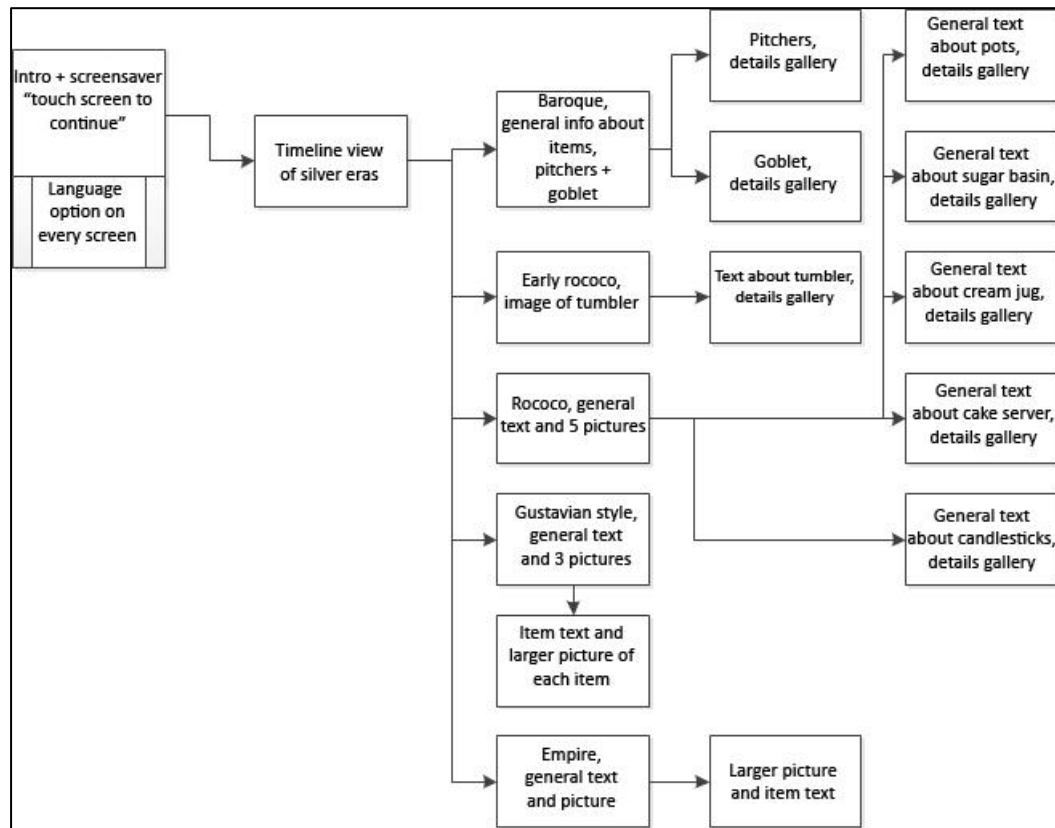


Figure 5. Digital signage diagram of page structure and linking.

In the page structure (figure 5), you can see from left to right the levels as columns. All pages places underneath each other has a similar layout. The gallery pages, which have the slideshows, are always the last ones on the right handside. From the gallery level you can only return back to the previous page. Some pages that containing a lot of content could have as many as 5 galleries parting from them. For example rococo's first slide show had 5 images and from all those 5 images a separate gallery could be opened. When planning the page structure it is important to think about the usability. The navigation needs to be logical and follow the same pattern in each level. We wanted the visual look to be clear and usability to follow what people are generally used to. Before we started writing any code, we made digital mock-ups. They can be seen in figure 6.



Figure 6. Digital signage projects page layout visuals.

Figure 6 illustrates how we planned the visual and usability aspects. It was logical to place the most important information to the right, since people from western countries read from right to left. The language selection is static and placed to the right. All other information is changing and following the level structure. The mock-ups were presented as just images and discussed with the customer in the following project meeting. This mock up more or less determine the place of text and picture elements, and we could start building the code. Many changes were made to the visual look along the project but it turned out that from the beginning we shared common ideas with the visual outlook of all exhibition material.

When considering usability, it is very important to keep the users in mind. The users may not be as experienced with computers as the developers. The navigation should be made easy, so that users would not have to think, but they would be guided forward. We had a few things we needed to point out to the user so that they could navigate between the pages efficiently. We had to make a the following buttons: back,

information, language change, home and an indicator that would tell that when touching a particular image, another one will open. Since our users could be using any three separate languages, we could not use words in the buttons. After many trials we ended up with an arrow shaped back button and a house shaped home button, both of them were placed in the static left navigation in the top left corner. A small "info" button for information was placed in the down left corner of the screen. And a magnifying class symbol was used when we wanted the user to click on an image. All these can be seen in figure 7.

Almost all information that was put in the product we got from the customer. We only added a few features and rudimentary sentences. All the added features were discussed and accepted by the customer, also the selection of words was carefully considered with language advisors. A slideshow gallery was added to process the images better, and a floating information canvas was made in the lever 5, slideshow page. This can be seen from figure 7.



Figure 7. Digital signage slideshow layout with floating information canvas.

Figure 7 is close to the final form of the project. There you can already see the right artifact pictures and text.

One feature we added to the project was a timeout implementation. Because the digital signage would be open on the displays whenever the museum is open it would be best to have a screen saver to save energy and avoid getting the screens over heated or image burned on the screen. The screensaver was to be the same on each display and it would encourage exhibition guests to start using and touch the screens. The timeout implementation was set to go on after 30 minutes if nobody had touched the screens.

Picture management was very essential in this project. One key point of the whole product was to present detailed images of artifacts, especially ones that were small in size. We could not place all the large images on the slide show because it would make the processing too heavy and slow the program down. That is why we decided to have all images in two sizes, small thumbnail images and large "full-size" images. We placed smaller "thumbnail" images, size 250x175 pixels, to the slideshow. The slideshow example is illustrated in figure 6 down right corner. Large "full-size" images, size 1200x800 pixels, were made to open whenever a thumbnail image of the same picture was touched. This gave us a little bit additional work because we had to process every image twice, but it made the layout work better and program run smoother.

We divided this product testing into three categories: bug testing, usability testing and hardware testing. Bugs were tested from every feature as it was made. We made sure that everything was working properly after each change. Our way of working was efficient and productive since we always had a list of things which needed to be done and tested.

When the product had all main components, information and it was moved to the ELo display the customer got a chance to test the product in our meeting. Usability testing was also made with elderly people, since they are a big part of museums customer group. The usability testing did not bring any major changes, it confirmed the ideas we had and gave us a good idea of time that people are willing to spend on such implementations.

Hardware testing was done as the final part of the production. Since we were developing the product on a regular computer but the actual use of the product will be on a

different display, that needed to be tested. Digital signage did act a bit differently on the Elo displays. The fonts and screensaver needed to be tweaked after we had transferred everything on the right computers.

6.6 Production for marketing material project

The production stage of this project suffered from the lack of clear targets. In production meetings with the customer we tried to come up with the best possible ways to present the wanted facts. The question was how to get the videos to be entertaining, while at the same time viewers would learn the facts about the workstations. The customer stated that the final order of facts presented in the videos does not have to be the same as in the scripts. In the editing stage we could change the presenting order of text and key points.

At this point the presentation format was questioned, because the customer could not state in what format the final product was to be displayed in. It was stated that the video could be shot in the best possible format then exported into one high quality format that could be used in company's presentation and one smaller format that could be put into the company's website. We also discussed the possibility of putting the content online on a Prezi presentation. Prezi is a visually appealing cloud based presentation software that allows you to group together the subject with the help of images, text or video [13]. Prezi has become a good opponent for PowerPoint software, especially in the university world.

Even though the final presentation format was not clear, we headed on to the shooting because everything was already set up. The shooting was planned in a way that all material that we could shoot in the school's classroom was shot during two days in June. This was all material for multipurpose laboratory and mobile control video, and some detail shots of the equipment for the training kit video.

I made the shot list on the base of the storyboard. In the shot list all wanted shots are written down with descriptions. Scene, shot, action and shot description are the most important information you need to have. To speed up the shoot day, shot list can be

planned so that all similar shots or same angle shots are shot sequentially, not in chronological order. This you can see from table 2.

Table 2. TEKLAB multipurpose laboratory Shot list, day one.

SHOTLIST 21.6 TEKLAB-Multipurpose laboratory, day 1						
	Scene	Shot	Action description	Shot description	Tables	Takes
1	3	2	Theory practice, students making notes	MCU.Teachers perspective.	down	
2	3	3	Theory practice, students making notes	WIDE, PAN: right	down	
3	4	1	Teacher sit, opens program	MCU.Teachers perspective.	down	
4	4	2	Teacher sitting, opens program	CU.OTS.PAN:right	down	
5	4	3	Interface open, worstations up	ECU	down-up	
6	6	1	Teacher sitting, controlls workstations exercise mode	CU.OTS.PAN:right	up-med	
7	6	2	Interface lower tabels to	ECU	up-med	
8	7	1	Teacher sitting control worstations, power	CU.OTS.PAN:right	med	
9	9	3	Teacher sitting controlls workstations.down	MCU.dont see what is on comp screen	up-down	
10	9	4	Interface worksattions to thoery mode, shut down	ECU	up-down	
11	2	1	Theory mode, Student sit in the class room	EWIDE.DOLLY:left	down	
12	2	2	Theacher enters the class room	MED.DOLLY:left/ forward, PAN:right	down	
13	9	5	Teacher leaves the class room	WIDE. DOLLY:right/back, PAN:left, follow t	down	
14	3	1	Theory teaching	MED.(DOLLY):right students perspective		
15	4	4	Tables start rising	CU	down-up	
16	4	5	Tables start rising	WIDE	down-up	
17	6	3	Worstations move down	WIDE.PAN:left	up-med	
18	9	1	Students finnishng work, Teacher conrolls workstatio	WIDE.	med-up	

From the table you can see that scene 3, shot 2 is the day's first shot. The action and shot descriptions with stage of the workstation is written down for clarity. The number of takes is then tallied in the final column of the shot list. Shot lists can be built in other forms also, depending on what information is essential to the project.

The set up for the shoot started with a lot of tasks: cleaning and setting up the space the day before, putting notes on the door and reminding people with emails to arrive to the right place on the following day. Taking test shots and checking that the equipment is working was also a major task that needed to be done before the shooting day arrived. On the shooting day we started with setting up the equipment for the first scene, then arranging the food and assembling the people. Before anybody was asked to do anything, I explained the idea of the videos, structure of the day and what was asked of them. After that, minimal instructions to the people were needed. They were students acting as students. And everybody was complying well.

The shoot was done in two parts as you could learn from table 2. A single camera was used to take all shots. It was moved around the room for different angles and view-points. A dolly was used to add movement to otherwise simple shots. Dolly track and cart was not professionally built so it was difficult to handle. An other thing that made the shooting difficult was the lighting situation of the room. The laboratory room had mixed lighting condition: fluorescents light from the ceiling, sunlight from the window and additional tungsten lighting that was built. Working with the tungsten lights diffusers were used to make the light softer and blend better with the existing lightings.

Audio was recorded with the camera microphone for reference. Better quality sound was recorded separately. Ambient sound of the room, workstation mechanics and teachers speech was recorded with external recording device. Audio recording was made after the shoot to minimize the amount of possible disturbing noises.

I was not happy with the footage I got from the first day. I had not paid enough attention to camera settings and the picture did not look as I had planned. I investigated ways of making adjustments in the postproduction stage, but the image quality would not be as wanted. So re-shoots had to be planned. For the re-shoots I gathered a different group of people, and choose the shots that I needed to remake. This time I made sure all settings were correct after each time camera position was changed. To the best of my abilities I concentrated on the movement as well as the focus. Most of the shots made in the re-shoot ended up in the final product.

Material with the client was exchanges through email and schools web server stream network. We had planned to put all video material online for the customer to view and comment. However, the stream platform did not work as wanted. This affected the exchange of communication and was very unfortunate. Because of most of the school staff was on summer holiday, it took us almost a month to get the problem solved and fixed. During that time we were able to place some video and audio material on my home directory and we also viewed the material in the meetings.

During the month of July there were a two-week summer holiday break when I had time to edit this material and put most of the video concepts together. The second

shoot was planned to take place at the Teklab office in Porvoo in the end of July, but the time was changed due to holiday and Teklabs new equipment delivery.

We made a visit to the office in the beginning of August to have a meeting and plan the shoot. During this meeting the client expressed that they had thought about the video content more and would like to make some changes. They would like that one video would present four features of the workstations: multipurpose usability, compatibility, safety and advanced features. This would include the material already shot but divide it differently. The second video would be a more of an introduction about the company, showing their best features. The second video concept was not clear for us and they promised to give more information about its content, in near time. We wanted to be flexible and meet these new demands. The video shoot in Teklab's office was postponed to the beginning of August, because of the changes and Teklab's existing order situation.

The shooting day in Teklab office went well. We got previously planned shots in the time that was reserved for it. We took many shots from different angles, one workstation at a time. We also used the Dolly and track at this shoot to get more variety in the shots. At the office we shot all planned images including the mobile control's computer interface images.

Shooting the computer and mobile phone displays was challenging. In these shots the computer interface and mobile interface was shot straight from the displays. With mobile phone the hand movement and device angle had to be controlled perfectly, so that we could minimize shaking and light reflections. With computer displays the refresh rate had to be adjusted with the cameras frame rate, so that we would not see any flickering or moiré effect. I did not succeed avoiding disturbance on the computer display shots, so we were planning to use a separate capturing technique. At this point the customer thought that the image quality was good enough.

In the beginning of this project we had planned to have all material shot in two shoots. This plan had now turned into three shooting days, also it came clear that there was one more shoot to be organized. We agreed with the client that it would be good to use the same person in the mobile functionality video and in the multipurpose video.

This meant that the last shoot had to be scheduled to the end of August due to this person's availability. However, this shoot was easy to produce, because we already had existing video material it needed to match with. Extending the schedule had been discussed in the meeting with the customer and for them it would not be a problem to continue this project during the fall. From our standpoint it was not possible to extend the project much because regular school classes would start.

6.7 Digital signage post production work

The product was delivered on the agreed time to the customer. We went to the exhibition space to move all files and made sure everything worked on the corresponding three computers. The displays were mounted into the wall structures of the exhibition space. The placement of the displays was a little lower than we had thought and it came clear that we would have to lower the home and back buttons, since users will be looking at the screen from an angle. The position of the screens can be seen from figure 8.



Figure 8. Users touching the screen in the museum space.

Figure 8 illustrates the usage of digital signage interface. Museum guests could use the touch screens as they were viewing the items and passing through the exhibition. The digital signage platform was up and running in the exhibition space well over a week before the opening. During that time we waited to see if any bugs would be informed to us. There was only minor malfunction with one computer. The digital signage did not stay full screen, even though the settings were set to desired proportions. This was due to some previous software still operating on the computer. After the opening of exhibition there has been no further contact between us and the customer. We assumed everything worked as they wanted and there was no need for any effort from us.

From the customer's request we made a small instruction's manual how to manipulate information incase they want to change something, such as an image or if they spot an error in the spelling. The project went so well Metropolia and KAMU are now continuing to collaborate, with a new project.

6.8 Postproduction work for marketing material project

Postproduction of marketing material project was very much overlapping with production stage because the shoot days were so much apart. Also, the changing of the concept made me go back and forth on different production stages. The texts and graphics were manipulated and changed until they had to be left as they were.

For the first video, editing and manipulating material was done with Adobe Premier Pro software. Manipulation of material was started as soon as it became possible. In editing, good material was located and named, then places in the suitable timeline. Text, graphics and audio clips were also positioned to fit the content. When all video clips were matching with text and audio clips, color correction was made. During the shoot I had used lighting meter to take readings from opposing sides of the room. This would help me to define the existing light condition and let me learn more about color correction. The postproduction work for the second video differed from the previous one, because it was to have text, graphic and video material with animated transitions. Complicated transitions could not be made with Adobe Premier Pro software, so all the work was made with Adobe After Effects. This program has a similar timeline interface but I had fairly little experience working with it.

To be able to make the second, company presentation video, I needed to know what the customer wanted to have in it. We received material for the concept of the second video but the actual content was unclear. This issue was raised in a meeting in the end of August. The customer expressed that they did not have a clear view of how they wanted the company presentation video to look like. They wanted us to give our creative input to the project and emphasized that the videos should clearly convey the concept from the company presentation. From our point of view this made the whole project more difficult. Earlier we were expected to produce videos from a script and now when we should be already finalizing the products we were asked to come up with the concept and content to the video.

At this point we should have already be close to the end of the project, because regular school classes had begun. The end date of the project was postponed to the 30th of September. A visual plan for the company's presentation video was made. The customer approved the plan we presented, so I began to construct the video based on that. I combined animated text, 3D images and additional video material to the animation. The video progressed similar to a PowerPoint presentation, but naturally it had more improved features.

As the project was coming closer to its end, the customer requested that we no longer continue with the project. They would like to compensate us for half and not even receive all the material done so far. We did not agree with this because the whole project was 10 days from being finished. So we completed all the material and delivered everything on time. After that the issue has been out of student's hands and between Metropolia and the client. I believe the matter is tried to be solved through negotiation and if an agreement cannot be found, it will be handled as disputes are always handled in Finland, in the municipal court.

6.9 What was learned from the projects

Digital signage platform was not familiar to me before entering that project. I learned the structure and the basics of how the platform engine works. Planning and making an interface to a digital signage platform was very similar to making a web page. We were very lucky to have a talented programmer Matti Lahtinen to clear out all issues

that rose up. This project showed how digital signage can be used to serve many different purposes; it does not have to be always used in product advertisement.

In picture manipulation we became sufficient using Photoshop's action palette. It is the fastest way to manipulate such a large amount of pictures. The method works so that it records each step you make when manipulating one image, for example changing the size and storing it a different folder. After recording these steps you can, with just using one hot key, perform the same steps to any other picture you want.

In the digital signage project I really learned a lot about file storing methods. We changed the initial file structure after we got most of the program structure ready. In the late stage of the progress it was very important to keep track on what was the final version of the program since many rapid changes were made. After the project I have learned that files that seemed useless should still be stored with the rest of the project. For example it would have helped me to review the whole project for this thesis study if, all pictures taken would have been stored in the same place. In the end the project group should make sure that all documentation and files are stored in a worthy manner. The format and naming of files should be logical and files should be backed up in case they are needed again.

Digital signage project worked well because the people selected to participate were all motivated and knowledgeable. The customer knew what they wanted and they could input the needed time and effort to make it happen. From the beginning each member of the project group had a role and knew what was asked of them. Communication worked well and there were no misunderstandings between the customer and the production team. To me it was an ideal project to do, because the topic was interesting and the people I worked with were very skillful and pleasant. We had comfortable settings surrounding us and a great customer, who made an effort to provide us with all information we needed.

From the marketing material project I learned many things. The main thing was to develop better communication skills, learn to listen to the customer and understand what they wanted from the project. At the beginning of the project we had a different understanding on what the customer wanted. The customer was not sure how they wanted the end product to be. Maybe they were hoping that students would just come

up with something great for them. In one of the final meetings the customer asked us to come up with concept to the video, even though during the whole project we were thinking that they would provide us with that information. This project could have been successful if there had been a marketing person involved, one who would understand what would be a good way to convey the features company wanted to present.

A student project should not be started without knowledge of the end product and defining it. If a project is started with just an idea but not really knowing what the end result could be, it is almost doomed to fail. At least there will be a lot of work hours wasted, on testing what might be the right direction to go. This does not rule out flexibility in the project, but the outlines should be defined or then negotiated, with all parties included, as the project goes on. This comes down to the first aspect of the project management, which is defining the wanted product. Customer should be specific on what they want and as detailed as they can. In student projects it would be beneficial, if the customer is reliable and has the needed knowledge on the subject.

In the production stage of marketing material project I feel that I could have worked more efficiently if there had been more people working with me. In professional video production there are at least 4 persons working on the same project. I was alone doing the set up, shooting, directing extras and producing. It took a lot of effort and thinking to get everything working in the wanted schedule.

7 Conclusions

Before I started my first customer project, I would have hoped to have gotten a small introduction to project management. I believe there are many things that I have learned through trial and error, which I now notice are common project management.

In many projects the roles of participants are not clear. In the worst case students wonder are left to wonder, who is responsible of what. This can be avoided. If students had more knowledge in the beginning of the project, there will be fewer misunderstandings and difficulties could be cleared more easily. I believe that students coming from outside Finland are insecure when going into their first customer project meeting. Cultural and language differences can cause extra difficulties.

The purpose of this thesis was to view project management in customer projects, from the view point of Media Engineering Degree students. Another objective was that new students who are starting their first customer projects could familiarize themselves to project management stages and learn what are the most important aspects to consider.

Project management is a long process and each stage is dependent of the other. If the project is not defined and planned clearly, it will be difficult or almost impossible to achieve the wanted results. The best tools to a successful project are effective communication and good customer management. All in all projects require a lot of work and sometimes there are situations that seem impossible to solve, but working in projects is extremely interesting and educational. From project work it is possible to gain knowledge and skills that you cannot gain from other means of education.

In my opinion, customer projects offer an insight to work life. They are the best way of learning for media engineers, since future jobs are commonly project related. Today big media companies outsource a lot of their work. Media production is done in small projects, which correspond to the project we are learning to do in school. [8.] Metropolia should continue to encourage and guide students to make more and better customer projects. I hope my Student Project Guideline could be used as an introduction of project management, to students who have no previous experience and are starting their first customer project.

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Student Project Guide

Project management skills are important to all engineers. Your study programs include many group projects where students are thrown together to “sink or swim”. Customers are usually other schools, individual people or small to large companies. The topics and substance of projects have a great diversity and the duration can be from a few weeks even to a whole semester. Customer projects are most likely to be connected to a corresponding course subject or done during the industrial placement period. As a student you can earn study points or get other compensation from the projects, but the main thing you gain is excellent opportunities to develop your skills. Developing your people skills and learning to lead a project can benefit you for many years; also they are skills that are wanted in almost all jobs.

Project Management Process 4D's

D1 Define it

1. Select a project leader
2. Define expectations / be on the same page with customer

D2 Design it

3. Assign people to individual tasks
4. Develop a schedule/work plan

D3 Do it

5. Assess progress
6. Adjust the plan
7. Repeat steps 5 and 6 until complete.

D4 Develop it

8. Report, store and improve

Each step is explained below:

D1 define itSelect a project manager

To have one chosen project leader is critical to success. Having several leaders can cause to miss assignments or pointless conflict. Project leader takes “ownership” of the project and leads the team all the way to a positive outcome. Everyone leads in a different way, he or she can only practice their leading style by leading.

The role of project leader should rotate so that all get an opportunity to experience and nobody gets overwhelming amount of work. This is crucial when the same student have a number of projects together. Project leader role is a good credit to mention in your resume.

Define Expectations

1. Scope of the project
2. Definition of quality
3. Critical features
4. What is success?

“If you don’t know where you are going, you won’t know when you get there”. Limit how big, long, detailed, etc. the project is and have everybody on the project group get on the same page. Make sure you understand what the customer is expecting of you. It can be that the scope has been discussed between the school and customer before you even were told about the project, so make sure you know about it.

Each task can have a specific outcome; it can vary from drawing, computer program, calculation, report or analysis. The quality of each can be measured differently, it all depends on the wanted outcome or product. You can use previous projects as an example, or ask the school for insight into the expected quality.

How and by whom the quality will be assessed and how will conflict situations be resolved, are good things to discuss at this point.

D2 design it

Assign People to Individual Tasks

It is important to avoid misunderstandings. Even though many people can work on a same task, only one person should be responsible for it. Try to match the requirements of the task to abilities, skills and preferences of each team member. Try to assign the task that is critical to projects success to the most motivated and skillful team member. Keeping all this in mind, students are still learning and can get overloaded quickly. It is the project leader's task to make sure everybody is coping with the task they have been given.

Develop a Schedule/Work Plan

Schedules are essential to project management. You can start developing the schedule from set dates, which mark when the project starts and ends. After that you can break down the project to specific tasks. Each tasks development time should be predicted. You must also identify how tasks are depending on each other. If possible leave some air in the schedule, since people are often optimistic on their time estimates. Also unexpected delays such as the flu are common. The team leader should review progress and keep team members completing their tasks on time.

You can use any type of schedule to keep track of your project. Find the one that suites best to your project. The so called Gantt chart is commonly used in projects. Schedule templates and examples can be easily found online. Make sure you agree how to keep in contact with the project group and the customer. You can use email, phone or meetings. It is also important to discuss, where the project schedule can be viewed and how to name and store the project files. It is good to have one person in charge of file storing and backups.

D3 Do it

Assess Progress

In this step the team members put their people skills to practice. It happens that people don't follow through on their commitments. Many are optimistic about catching up later, if they are behind the schedule. A good way is to request to see intermediate work and check status of individual tasks. This also helps to clear any existing misunderstandings.

Usually to check progress, a progress meeting is held. In the meeting status of the project and main conclusions are recapped. Also obstacles for development can be identified. Task schedule should be updated and the project manager should keep track on the progress of each task.

Meetings with the customer

To a successful project effective meetings are very important. There are four steps to how you can accomplish this:

1. Everyone is required to be prepared. Project manager (or person leading the meeting) should develop a topic list, invite and distribute the agenda. All attendees should know the agenda and purpose of the meeting and understand their individual role.
2. Arrive and start the meeting on time. By being late you are wasting everybody's time.
3. Before the meeting begins a notetaker should be assigned. It is important to have decisions and actions recorded and documented accurately. After a time notes can be easily reviewed for who was present, what was discussed and decided and in what stage the project was at that point.
4. The participants should keep their statements short and on point. An agenda should be used to stay on track. The person who is leading the meeting should allow everybody to have their say. He or she should make sure everybody understands the points discussed, especially when decisions are being made. A meeting should be closed out by reviewing decisions made and next stages of the project.

The first meeting with the customer can be formal. It is customary to greet with a smile, direct eye contact and a firm handshake. Repeating your first and last name while you are shaking hands is preferred. After establishing a relationship with the customer, communication can be informal if suited to the project. Getting used to proper way of meeting with clients will only benefit you in working life.

Adjust the Plan

To get the project completed in wanted time you have to keep track of all small tasks. Be realistic and don't hope for fast progress. Remember that bad news don't improve in time, the faster you admit problems the faster you'll find solutions for them. The most important tool to having a successful project is communication! In project meetings the project group should review the progress of individual tasks and make adjustments to the plan till the project is completed.

D4 Develop it

Report, store and improve

Even though you have now successfully completed your project, take time to complete just a few more things. Make sure you store all files and documentation together, just in case you are asked to do project again for another customer or something similar. No point inventing the wheel again. The point of reporting is to review the project as a whole and point out good practices and points for improvement. Take a note that good meeting notes are a report half-done. All in all the main thing is to learn from all projects and improve your skills.

The project management is a long process and each stage is dependent of the other. If the project is not defined and planned clearly, it will be difficult or almost impossible to achieve the wanted results. The best tools to a successful project are effective communication and good customer management. All in all projects require a lot of work and sometimes there are situations that seem impossible to solve, but working in projects can be extremely interesting and educational. From project work it is possible to gain knowledge and skills that you cannot gain from other means of education.

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